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Political regime and FDI from advanced to emerging countries

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Abstract We investigate the effect of the political regime on bilateral FDI flows from advanced to emerging countries in the period 1992–2004. We control for country size, per capita income and privatization proceeds in the host country, and use a random-effect Tobit model to exploit information from zero entries. Our results suggest that democracy does have a positive effect on the amount and probability of FDI flows from developed to emerging countries. Moreover, we find that the effect of democracy on FDI also works through the total factor productivity channel, not only the political risk one as suggested in the literature.

Keywords Foreign direct investment · Political regime · Democracy · Tobit models

JEL Classification F23 · P51 · P48 · C24

1 Introduction and motivation

Foreign direct investment (FDI) is often considered beneficial for both source and host economies, and a great deal of research as well as policy debate has recently focused both on FDI attraction by nations and regions, and on the international activities of multinational firms (UNCTAD 2005).[1] From the early 1990s and throughout the beginning of this century, FDI inflows have amounted to a large

[1] See Meyer (1998) for a counter argument.

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fraction of the emerging markets' GDP, while more recently some emerging countries have become net FDI exporters. Interestingly, among major FDI emerging recipients there have been both democratic countries and autocracies (e.g., China, Egypt, Morocco, according to the classification of best renowned academic sources).

There exists a large and growing literature on the relationship between political regime and international trade. Mansfield et al. (2000) find that pairs of democratic countries set lower trade barriers and therefore engage in more open trade relations. Milner and Kubota (2005) argue that regime change towards democracy reduces the scope for the political elites to build support upon trade barriers, hence that it is democratization that enhances trade openness. More recently, Milner and Mukherjee (2007) have argued that democratization leads to skill-biased trade liberalization, as the ruling elites have an interest in reducing the revenues accruing to the middle class as the latter could become a political challenge. Aidt and Gassebner (2007) find that autocratic states trade substantially less than democracies, that this does not rely on peculiar estimation techniques, and that causality runs from political regime to trade flows.

The econometric literature on the relationship between political regime and FDI is more recent, and there are relatively few studies that examine it within the wider scope of the "institutional determinants" of FDI. For example, using both cross-section and panel data analysis, Busse (2003) finds that democracy raises FDI inflows in emerging countries. Busse and Hefeker (2007) show that government stability, absence of internal conflict, and basic democratic rights are significant determinants of FDI inflows. Bénassy-Quéré et al. (2005) examine the institutional determinants of FDI, mainly focusing on "institutional quality" and "institutional distance" concepts. They find that "good institutions" almost always increase the amount of FDI. This effect, they argue, is independent of the effect of GDP per capita. Méon and Sekkat (2007) find that institutional quality enhances FDI inflows, although reverse causality might be responsible for the weakening of the statistical relation. In an earlier paper, Méon and Sekkat (2004), focusing on MENA countries, also examine the relationship between institutions and FDI.

There are also a few empirical studies that contribute to this debate from the political science side. For example, Li and Resnick (2003) show that when the level of property right protection is controlled for, democracy reduces FDI to developing countries. Jakobsen and de Soysa (2006) examine the same issue, and find that such a negative relationship between democracy and FDI is fully dependent on sample size and estimation methodology. Their results support a strong positive relationship between democracy and FDI inflows to emerging countries. Based on data from insurance companies and rating agencies, Jensen (2006) finds that democracy in emerging countries reduces expropriation risk for foreign investors.

In this paper, we contribute to the debate on political regime and FDI in four distinct ways. First, we estimate the impact of democracy on bilateral FDI flows from advanced to emerging countries in the period 1992–2004. This is relevant as this corresponds to the first stage of the recent globalization wave, when emerging countries have attracted significant investment flows from advanced countries. While we focus on a specific type of capital transfer, ours could be viewed as a

contribution to the wider issue of the cross-country allocation of capital flows (for a recent update, see Gourinchas and Jeanne 2007). We control for country size, per capita income and privatization proceeds in the host country, and use a random-effect Tobit model to exploit information from zero entries. The use of bilateral data has the advantage of allowing the econometric treatment of individual country pairs. In contrast, we could have employed aggregate FDI data, which covers a wider sample, but we would have lost significant country-pair heterogeneity contained in the bilateral flow matrix. In other words, we argue that the impact of the political regime on FDI flows could be significantly different for each country pair.

Second, we examine whether the type of democracy (i.e., parliamentary versus presidential) in the recipient countries matters for FDI. To the best of our knowledge, this has not been done in the literature. Third, we examine the channels through which the nexus between political regime and FDI might be working. For this, we assume that political regimes might affect FDI through two alternative channels. On the one hand, different economic policies associated with different regimes (e.g., more or less trade liberalization) might affect the allocation and efficient use of production factors, as well as technology adoption in emerging countries, and therefore they might affect total factor productivity (TFP) and the expected return on investment. On the other hand, different regimes may affect property right enforcement and the risk of expropriation for foreign investors.

Fourth, we address the interplay among political regime, per capita income and FDI. The relationship between per capita income differentials and FDI is much debated, and two alternative arguments are suggested in the literature. Larger differentials could foster FDI, as multinationals could fragment production and invest in low income countries in order to save on labor costs. The alternative argument is related to the so-called "Linder" hypothesis of international economics/trade: the more similar countries are in terms of average income, the more similar preferences and demand patterns are, hence the larger intra-industry trade among those countries. This argument can be extended to the case of so-called "horizontal" FDI, which is implemented in order to sell in the host market and is more likely to occur among countries that are similar in demand patterns. Here, we check whether the relationship between per capita income and FDI is affected by the type of political regime in the host country.

The next section describes our empirical model and estimation methodology. Section 3 presents our findings from random-effect Tobit regressions. Section 4 provides a discussion of the empirical results and some conclusive remarks.

2 Empirical model, data and estimation methodology

Our empirical strategy is loosely based on a "gravity model", augmented in order to explore the impact of the political regime on FDI. Standard gravity models of trade (among others, Egger 2002; Antonucci and Manzocchi 2006) and FDI (e.g., Razin et al. 2005; Guerin 2005) relate international flows to the product of source and host country economic size and distance. Augmented gravity models usually include per capita income of both economies, country-pair characteristics such as common

language, common legal origin, etc., and are usually estimated in static or dynamic log–log formats.[2] We use this benchmark to control for those economic fundamentals that are usually significantly associated with bilateral FDI flows, so that we can evaluate the additional contribution of the political regime in the host country and other reform measures. The benchmark equation is the following[3]:

$$\ln\left(inflow_{ijt}\right) = a_{ij} + u_t + \beta_1 \ln GDP_{it} + \beta_2 \ln GDP_{jt} + \beta_3 \ln pcGDP_{it} + \beta_4 \ln pcGDP_{jt} + \beta_5 X_{ijt} + u_{ijt}, \quad (1)$$

where $inflow_{ijt,}$ is bilateral gross FDI inflows from source country j to host country i at time t in constant 2000 US dollars. We use GDP of the host country at time t (GDP_{it}) and GDP of the source country at time t ($GDP_{jt,}$) as measures of the size of the markets; and we use per capita GDP of the source ($pcGDP_{jt}$) and of the host country ($pcGDP_{it}$) at time t as proxies of per capita income. These variables are also in constant 2000 US dollars. Since a number of country-pair invariant factors such as distance, common language, common legal origin, etc. are not of direct interest here, we let them be captured by the individual pair effect α_{ij}. We include μ as a time dummy to control for global shocks that may affect all countries in a similar fashion. Other controls (X_{ijt}) include continent dummies (Latin America, Asia, Africa and Europe); a dummy for EU accession negotiations and privatization proceeds in the host countries.

As far as the type of political regime is concerned, we first follow Persson (2005) who uses a binary dummy variable based on the index variable Polity2 from the POLITY IV Project of the University of Maryland (see Appendix B). As some of the emerging countries in our sample make a *permanent* transition to democracy—with *no further regime reversal* within the observation period—the dummy takes value 1 starting from the year when the Polity2 index takes positive values, zero otherwise. In some specifications, however, we use the value of the Polity2 index itself: this is a variable ranging from −10 to 10, according to the "intensity" or "degree" of democratization in a country.[4] We also perform a robustness analysis of our results using a different proxy for the political regime (the Freedom House Political Rights index: see Freedom House 2007).

FDI data are obtained from the OECD International Direct Investment Database (2006 release), which provides data on bilateral inflows and outflows of FDI. Each OECD member country reports bilateral "outflows to" and "inflows from" other members, and a number of non-OECD countries. All values were originally expressed in the reporting countries' own national currency units, which were then converted into constant 2000 US dollars using OECD's yearly average exchange rates and US GDP deflators. There are 14 developed and 24 emerging developing countries in our sample (see Appendix A for the country list). Data on the explanatory

[2] For a critique of the log–log model, see Silva and Tenreyro (2005).

[3] See, for instance, Head (2003).

[4] The Polity2 index is a composite index of the following underlying variables: competitiveness of executive recruitment, openness of executive recruitment, constraint on the chief executive, regulation of participation and competitiveness of political participation.

variables come from various sources (Appendix B). The time range of our sample is from 1992 to 2004.[5]

As for the estimation method, we adopt a Tobit estimator that allows us to estimate a log–log equation without losing the information associated with negative and zero entries in the bilateral FDI matrix. If potential bilateral FDI flows do not always materialize due to investment indivisibilities, or are not recorded as actual FDI due to statistical conventions (only purchases exceeding 10% of stocks or common shares in an enterprise is recorded as FDI), it can well be that the reported entry of gross FDI inflow is zero, or even negative (e.g., in the case of large repatriated earnings from host to source country exceeding inflows of equity and intra-firm loans to the emerging host country). In our bilateral matrix we have 336 country pairs over 13 years, with a total of 4,368 observations. Of these, 731 observations are missing (NAs), 331 are zeros, 487 are negative FDI inflows. Hence, out of the available 3,637 observations 22% are zeros and negative values. Provided "zeros" represent true lack of FDI, dropping this information would lead to biased estimates of the true model parameters (Razin et al. 2005). Negative values might also carry valuable information. As mentioned above, negative values of *gross* FDI flows may arise when one sub-item of FDI (e.g., intra-company loans, reinvested earnings) is negative and offsetting new gross inflows: hence, negative gross FDI may be assimilated to "zero" FDI, i.e., no net contribution of FDI to capital accumulation in the emerging host country as more financial resources are repatriated to the source country.

In order to be able to use a log–log specification and to infer from the negative and zero observations, we employ a transformation of the dependent variable following Yeyati et al. (2003):

$$\ln inflw_{it} = \ln\left[|inflw_{it}| + 1\right] \quad [\text{sign}\,(inflw_{it})].$$

The first part of this equation helps keep the zero observations. When the dependent variable ($\ln Y$) is replaced by $\ln(Y + 1)$, the regression coefficients can still be interpreted as elasticities when the values of FDI are large, since $\ln(Y + 1) \approx \ln(Y)$. But for small values of Y, this transformation can be interpreted as semi-elasticity. The second part of the transformation allows us to keep the negative values for FDI inflows. One problem with this transformation is that by adding 1 to the actual value, the computed elasticity is distorted for small values of the dependent variable. For this reason, we measure FDI inflows in dollars (not millions of dollars), so that adding 1 to the reported flow is equivalent to adding one dollar to a large value.

While Tobit exploits the extra information carried by zero and negative observations, there is still a decision to be taken on whether to use a fixed-effect or a random-effect estimator. We opt for random effects based on two considerations. First, our individual country-pair effects can be viewed as a random selection of all OECD-emerging country pairs (excluding very small countries and purely oil-exporting economies).[6] Second, the choice between a fixed-effects and a random-

[5] For most countries in our sample FDI data for the 1980s are missing although the OECD database starts in 1980.

[6] In this paper, we neglect the natural-resource motivation for FDI. Consequently, fully oil-dependent emerging economies are not represented in our country sample.

effects model, provided individual country-pair effects are significant, is related to the shape of the panel. As $T \to \infty$, the fixed-effect estimator is fully consistent. However, if T is small and N is large, which is the case in our data set (N equals 336 country pairs; T equals 13 years), the parameter estimates for the fixed effects (the α_{ij}'s) become not consistent. This is known as the "incidental parameter" problem (Baltagi 2001). Therefore, a random-effects Tobit model, "censored" with a zero threshold for all values below the minimal actual size of positive FDI gross inflows looks more suited in our case (see for instance Peracchi 2004).

3 Empirical results

The random-effect Tobit estimator performs Gauss-Hermite quadrature to compute the log-likelihood and its derivatives, hence we have checked that our results are robust to quadrature sensitivity. All results reported are stable, thus they can be confidently interpreted.[7,8] We also have performed log-likelihood tests of the joint significance of the country-pair effects. The likelihood ratio test compares pooled Tobit against random-effect Tobit: in all tables, the χ^2 test rejects the null in favour of the random-effect model.[9]

Table 1 reports results from our benchmark model where we control for economic size and income in the home and host country, and for the type of political regime in the recipient country. Country-pair random effects are jointly significant as shown by the likelihood-ratio test (χ^2) reported in the last row of the table. In the baseline equation of column (1), the democracy dummy is not statistically significant (at 10%), whereas economic size and per capita income of the source and host country has a significant positive effect on bilateral FDI. However, if we control for privatization proceeds in the host economy, and introduce a dummy for EU negotiations, the political regime has a statistically significant (at 1%) and positive effect on bilateral FDI (column (2)). Privatization proceeds in constant US dollars measures the intensity of privatization programs in the emerging economy, and likely to be associated with FDI inflows for two reasons: first, it is a proxy for the (non-financial) assets that can be potentially acquired by foreign investors in the current year; second, it is an "objective" measure of the pro-market climate in the host country (in the sense of Campos and Horvath 2006). As many emerging countries underwent extensive privatization programs through the 1990s and early

[7] We used *STATA-Release 9* to perform Tobit regressions. *STATA* recommends that the results from the model estimated by 12 quadratures (default) points be compared to results from 16 quadrature points. If the relative difference in the estimated coefficients is larger than 1%, then the coefficients are not stable. If this is the case, it may be that the random-effects estimator is the wrong model.

[8] The only exception was the coefficients of the continent dummies. In some specifications, the coefficients for the continent dummies were not robust with regards to quadrature sensitivity as explained above. In those cases, continents dummies are not included in the regression as indicated in the tables. The exclusion of continent dummies did not have an effect on the stability of other variables.

[9] The χ^2 test is designed to check whether the random effects from a panel Tobit estimations are significant vis-a-vis pooled Tobit estimations. The statistics for individual country-pair effects are available upon request. The time dummies in our tables are also jointly significant, and the results are available upon request.

Table 1 Political regime and FDI inflows from advanced to emerging countries

Dependent variable: inflows	(1)	(2)
GDP of source	2.25 (0.21)***	2.21 (0.20)***
GDP of host	1.28 (0.23)***	1.32 (0.28)***
Per capita GDP of source	3.00 (0.83)***	2.32 (0.81)***
Per capita GDP of host	0.72 (0.31)**	0.07 (0.42)
Democracy dummy	0.26 (0.67)	1.55 (0.56)***
Privatization proceeds		0.35 (0.11)***
EU negotiation dummy		0.63 (0.67)
Time dummy variables	Yes	Yes
Continent dummies	No	Yes
N (uncensored, censored)	3,637 (2,819, 818)	2,665 (2,130, 535)
Log-likelihood	−10,978.48	−8,075.48
Likelihood-ratio test: χ^2 (probability)	273.92 (0.00)	154.43 (0.00)

Standard errors in parentheses. *, **, *** denote significance at the 1%, 5%, and 10% level respectively

2000s, it is important to control for privatization to disentangle the effect of the political regime on FDI inflows. The EU binary variable takes value one when the emerging country enters EU membership negotiations (and zero for the years before). The European Commission and Council allow the start of official accession negotiations with an applicant emerging country only after the latter has complied with three sets of so-called "Copenhagen criteria", which require a number of reforms leading to democracy and civil rights, the establishment of a sound market economy, and macroeconomic stabilisation. Hence, the EU negotiation dummy can be viewed as a comprehensive indicator of political and economic reform, which however has the disadvantage of being useful only for European countries. Controlling for privatization proceeds and the EU negotiation dummy, we find that democratic emerging economies tend ceteris paribus to receive more FDI inflows from developed countries (Table 1, column (2)). The privatization proceeds have the expected sign and are strongly significant at 1%, while the EU dummy is not (but excluding it does not affect the other coefficients, included that of "privatization proceeds").

In order to test the robustness of our results to a different measure of democracy, in Table 2 we replicate our regressions using the Freedom House Political Rights index instead of the POLITY IV dummy. The Freedom House index (ranging from 1, highest degree of freedom, to 7, lower amount of freedom) has a statistically significant effect on FDI inflows as less political rights discourage FDI inflows. This suggests that the positive influence of democracy on FDI inflows in emerging countries is robust.

We have also performed a number of regressions using the Heckman selection model instead of the random-effect Tobit model. The Heckman model jointly estimates a Probit for the probability that a bilateral FDI inflow is positive, and an OLS for those observations where actual FDI values are positive. However, the Rho

Table 2 An alternative measure of democracy: the Freedom House index of political rights

Dependent variable: inflows	(1)	(2)	(3)
GDP of source	2.28 (0.20)***	2.22 (0.20)***	2.22 (0.20)***
GDP of host	1.92 (0.25)***	1.55 (0.27)***	1.56 (0.27)***
Per capita GDP of source	3.11 (0.80)***	2.32 (0.81)***	2.32 (0.81)***
Per capita GDP of host	0.20 (0.34)	0.00 (0.42)	−0.05 (0.42)
Political rights	−0.26 (0.15)*	−0.46 (0.16)***	−0.45 (0.16)***
Privatization proceeds		0.33 (0.11)***	0.32 (0.11)***
EU negotiation dummy			0.50 (0.67)
Time dummy variables	Yes	Yes	Yes
Continent dummies	Yes	Yes	Yes
N (uncensored, censored)	3,634 (2,819, 815)	2,665 (2,130, 535)	2,665 (2,130, 535)
Log-likelihood	−10,953.88	−8,076.34	−8,076.07
Likelihood-ratio test: χ^2 (probability)	230.67 (0.00)	153.48 (0.00)	151.80 (0.00)

Standard errors in parentheses. *, **, *** denote significance at the 1%, 5%, and 10% level respectively

test indicates that our data set is not appropriate for implementing a Heckman selection model, hence we do not report those results here.[10]

We have also addressed the potential endogeneity bias in our results. As shown by Li and Resnick (2003), FDI inflows may positively affect democracy hence causality may run from FDI to the political regime. In order to check for that, we have tested whether FDI Granger-causes democracy in our panel with the following equation estimated with random effects:

$$Democracy_{it} = b_i + \sum a_{ij} \ln FDI_{ijt-s} + \sum \beta_{ij} Democracy_{it-s} + u_{ijt}. \qquad (2)$$

We have employed a χ^2 test to examine the null hypothesis (Ho: $\alpha_{ij} = 0$) with lags variable from 0 to 3. Our results indicate that there is no statistically significant evidence that FDI Granger-causes democracy ($\chi^2 = 3.54$, $p = 0.32$).

We then ask whether the "type" of democratic regime in the emerging countries matters for FDI inflows from advanced economies. Table 3 shows the effect of a parliamentary regime vis-a-vis a presidential one. In other words, we restrict our sample to host democratic countries only, and ask whether it makes a difference to be a parliamentary rather than a presidential democracy. For the definition of the type of democracy we follow Persson (2005). Accordingly, a democracy is classified as parliamentary if the confidence of the legislative assembly is necessary for the survival of the executive even if an elected president is chief executive. Our results suggest that—across emerging economies—parliamentary democracies tend to receive larger FDI inflows compared to presidential democracies, and/or they are associated with higher probability of receiving FDI, controlling also for privatization. This is true whether or not the EU negotiation dummy is included. A possible

[10] The results are available from the authors upon request. The Rho test relies on the correlation between the residuals of these two equations. The results do not justify the use of the Heckman selection model with our data set.

Table 3 The effect of parliamentary versus presidential democracy on FDI inflows

Dependent variable: inflows	(1)	(2)
GDP of source	2.16 (0.21)***	2.16 (0.21)***
GDP of host	1.26 (0.31)***	1.24 (0.31)***
Per capita GDP of source	2.37 (0.87)***	2.38 (0.88)***
Per capita GDP of host	0.11 (0.44)	0.17 (0.43)
Parliamentary democracy dummy	1.49 (0.87)*	1.56 (0.82)*
Privatization proceeds	0.29 (0.12)***	0.31 (0.11)***
EU negotiation dummy	0.43 (0.73)	
Time dummy variables	Yes	Yes
Continent dummies	No	Yes
N (uncensored, censored)	2,227 (1,786, 441)	2,227 (1,786, 441)
Log-likelihood	−6,777.59	−6,777.77
Likelihood-ratio test: χ^2 (probability)	107.75 (0.00)	109.5 (0.00)

Standard errors in parentheses. *, **, *** denote significance at the 1%, 5%, and 10% level respectively

interpretation is that parliamentary democracy has a stronger positive effect than a presidential regime on trade liberalization (as suggested by Persson 2005), or on property right protection (presidential regimes could more frequently be tempted by a nationalization of foreign assets).[11]

In Table 4, we try to disentangle two potential channels through which the political regime may affect the FDI attractiveness of emerging countries. Following Persson and Tabellini (2006b), we assume two alternative channels: first, different economic policies associated with different regimes (e.g. more or less trade liberalization) might affect the allocation and efficient use of production factors, as well as technology adoption in emerging countries, and therefore they might affect TFP and the expected return on investment. The underlying intuition is that democracy is associated with more trade openness (e.g., see Aidt and Gassebner 2007) which exerts a pro-competitive pressure on domestic firms and factor markets, therefore leading both to better resource allocation across markets, and to higher internal efficiency of domestic firms. Second, different regimes may affect property right enforcement and the risk of expropriation for foreign investors (see, e.g., Jensen 2006). In a static setup such as ours, we cannot approximate productivity shocks or efficiency dynamics associated with different political regimes. However, in an attempt to discriminate between the two channels mentioned above, we introduce a political risk index referred to the host economy and ranging from 0 (highest risk) to 25 (lowest risk). This index is computed by Eschenbach et al. (2004) based on the Euromoney political risk index, and provides a (subjective) assessment of the risk of non-payment or non-servicing of payment for goods or services, loans, trade-related finance and dividends, as well as of the

[11] Persson and Tabellini (2006a) find that presidential democracy is more conducive to economic growth. However, we argue that this is not a contradiction with our results for two reasons: first, the effect they suggest is also due to more sound fiscal policies, which might not affect FDI; second, their sample of democratic regimes includes OECD countries as well.

Table 4 The effect of political regime on FDI inflows, net of political risk

Dependent variable: inflows	(1)	(2)	(3)
GDP of source	2.35 (0.24)***	2.25 (0.23)***	2.26 (0.23)***
GDP of host	1.03 (0.28)***	0.96 (0.29)***	1.02 (0.28)***
Per capita GDP of source	2.60 (0.95)***	1.57 (0.92)*	1.57 (0.92)*
Per capita GDP of host	−0.10 (0.42)	0.36 (0.41)	0.31 (0.41)
Democracy dummy	2.53 (0.80)***	2.39 (0.77)***	
Privatization proceeds		0.26 (0.13)**	0.24 (0.13)**
Degree of democratization			0.19 (0.06)***
Political risk	0.22 (0.09)***	0.22 (0.09)***	0.20 (0.09)**
Time dummy variables	Yes	Yes	Yes
Continent dummies	No	No	No
N (uncensored, censored)	2,309 (1,818, 491)	1,943 (1,559, 384)	1,943 (1,559, 384)
Log-likelihood	−6,927.74	−5,862.69	−5,861.94
Likelihood-ratio test: χ^2 (probability)	232.56 (0.00)	153.07 (0.00)	147.19 (0.00)

Standard errors in parentheses. *, **, *** denote significance at the 1%, 5%, and 10% level respectively

risk of non-repatriation of capital (see Appendix B for further details). This index is a proxy for the risk of expropriation, and helps us control for the effect of political risk on FDI inflows: once we include it in the regression in Table 4, the coefficient of the democracy dummy can be interpreted as the residual effect on FDI through resource allocation and efficiency. In column (1), we find that democracy is statistically significant (at 1%) and positive, and this can be interpreted as evidence that democracies may attract more FDI through a higher rate of TFP and higher returns on investment. At the same time, the coefficient of political risk proxy is statistically significant (at 1%) and has the expected sign, with more risk associated with less FDI inflows. In columns (2) and (3), we show that these results are robust when we include privatization proceeds and when we use the "intensity" of democratization in the host country (approximated by Polity2 variable) instead of the binary dummy for the political regime.

In Table 5, we tackle the issue of the interplay among political regime, per capita income and FDI. The relationship between per capita income differentials and FDI is much debated, and two alternative arguments are suggested in the literature. Larger differentials could foster FDI, as multinationals could fragment production and invest in low-income countries in order to save on labour costs (as mentioned in the case of so-called "vertical" FDI). The alternative argument is related to the so-called "Linder" hypothesis of international economics/trade: the more similar countries are in terms of average income, the more similar preferences and demand patterns are, hence the larger intra-industry trade among those countries. This argument can be extended to the case of so-called "horizontal" FDI, which is implemented in order to sell in the host market and is more likely to occur among countries that are similar in demand patterns. The trade-related empirical literature on FDI has found it difficult to single out these two motivations, and recent approaches tend to consolidate "vertical" and "horizontal" FDI within a broader

Table 5 The interaction between political regime and economic fundamentals

Dependent variable: inflows	(1)	(2)	(3)
GDP of source	2.20 (0.20)***	2.18 (0.21)***	2.19 (0.20)***
GDP of host	1.30 (0.28)***	1.04 (0.24)***	1.03 (0.24)***
Per capita GDP of source	2.34 (0.82)***	2.28 (0.82)***	2.27 (0.82)***
Per capita GDP of host	−2.15 (0.92)***	−1.96 (0.92)***	−2.02 (0.87)**
Per capita GDP of host interacted with democracy	2.66 (0.91)***	2.49 (0.92)***	2.57 (0.92)***
Democracy dummy	−18.35 (6.67)***	−16.76 (6.74)***	−17.29 (6.74)***
Privatization proceeds	0.36 (0.11)***	0.35 (0.11)***	0.41 (0.12)***
EU negotiation dummy		0.97 (0.65)	3.40 (1.79)*
Privatization interacted with EU negotiation dummy			−0.40 (0.27)
Time dummy variables	Yes	Yes	Yes
Continent dummies	Yes	No	No
N (uncensored, censored)	2,665 (2,130, 535)	2,665 (2130, 535)	2,665 (2,130, 535)
Log-likelihood	−8,075.58	−8,079.40	−8,078.34
Likelihood-ratio test: χ^2 (probability)	158.03 (0.00)	155.58 (0.00)	156.60 (0.00)

Standard errors in parentheses. *, **, *** denote significance at the 1%, 5%, and 10% level respectively

framework allowing for both market- and cost- driven investment (see, e.g., Carr et al. 2001; Braconier et al. 2005). A related question concerning the destination of "vertical" and "horizontal" FDI has been recently investigated in connection with macroeconomic risk, with Aizenman and Marion (2004) arguing that macroeconomic volatility tends to deter vertical FDI to a larger extent, and Jinjarak (2007) providing evidence on this.

Here, we check whether the relationship between per capita income and FDI is affected by the type of political regime in the host country. The results in Table 5 suggest that FDI inflows to autocracies are relatively more driven by cost-saving motivations (i.e., vertical FDI). This is indicated by the negative and statistically significant (at 5%) coefficient of per capita GDP in the host country—not interacted with the democracy dummy. In the case of democracies, we see that both the level of income and political regime play a role on whether an emerging country receives more vertical or horizontal FDI. When the democracy dummy is interacted with per capita GDP of the host country, it displays a statistically significant (at 1%) and positive coefficient, suggesting a stronger "market seeking" motivation for FDI inflows in the subset of democratic emerging countries.[12] However, the democracy dummy in the intercept becomes negative and statistically significant (at 1% level). This suggests that democracy alone cannot determine whether an emerging country will receive more or less FDI. In other words, democracy alone is not enough to attract FDI below a certain threshold of per

[12] The *sum* of the coefficient of "per capita GDP" of the host and "per capita GDP interacted with the democracy dummy" is positive and significant. This suggests that democratic host countries tend to receive relatively more "horizontal" FDI.

capita GDP.[13] For the specification in column (1) in Table 5, we can see that this threshold is approximately 1000 US dollars, i.e., when per capita GDP in the host country is below 991 US dollars, the FDI inflows to this country is either zero of negative, even though they are democratic.[14]

Since our country sample is restricted by the availability of bilateral FDI flows data, we have only three host countries in our sample that are classified as autocracies throughout the entire estimation interval, while two other countries are classified as autocratic for a part of the time span (see Appendix A). This may raise the question that the statistical significance of the interacted variables may be an artefact of lack of variation within our sample. So as a first step, we test the coefficients of per capita GDP of the host country and per capita GDP interacted with the democracy dummy, against the null hypothesis that they are jointly equal to zero (H_0: $\beta_1 = \beta_2 = 0$). The χ^2 statistic (9.77 with 2 degrees of freedom) indicates that both coefficients are jointly different from zero. We then test the null hypothesis that those coefficients are equal to each other (H_0: $-\beta_1 + \beta_2 = 0$). The χ^2 statistics (7.18 with 1 degree of freedom) indicates that the estimated coefficients for these two variables are not equal to each other. We have also checked the correlation between per capita GDP and per capita GDP interacted with democracy, and the correlation coefficient indicates a moderate relationship (0.62). All this suggests that the statistical significance of these two coefficients is rather robust, and that the coefficient of per capita GDP interacted with democracy should not be an artefact of the coefficient of per capita GDP. These results are robust to the inclusion of the EU negotiation dummy and an interaction term combining privatization proceeds and the EU dummy. Although GDP interacted with the democracy dummy is statistically insignificant, the positive and statistically significant coefficient for GDP alone (at the 1% level) indicates that size matters for FDI attraction. In Table 6 we replicate the same exercise using GDP per worker instead of per capita GDP, with similar results.[15]

Table 7 provides a more precise picture of the relationship between democracy and per capita GDP, on the one hand, and FDI inflows, on the other hand. Here, we use the Polity2 index (ranging from −10 to 10) instead of the binary democracy dummy. The results indicate that only host emerging markets who have reached an advanced level of democratization (above 6 on the Polity2 range) receive "horizontal" FDI: only for those values of the interaction between Polity2 and per capita GDP the sum of the two coefficients (the "pure" per capita GDP coefficient plus the interaction one) turns positive. For those host countries below this threshold, we conclude that they mostly receive "vertical FDI". However, this does not put into question our previous results (nor the use of a dummy to measure democracy), as almost all the democratic emerging countries in our sample pass this threshold (the exception being Mexico, Malaysia and Russia).

[13] See Friedrich (1982) for the interpretation of the multiplicative terms in a multiple regression.

[14] $\text{Exp}^{(18.35/2.66)} = 991$.

[15] We have also tested whether these findings are mainly driven by a China-effect, and replicated the regression excluding China. While we still find evidence that democratic countries tend to receive more market-seeking FDI, the coefficients are estimated less precisely, and are significant at the 10% level. However, we have few autocracies in the emerging country sample (one-sixth of the total) and reducing their number could make this exercise less reliable (results available upon request).

Table 6 The interaction between political regime and GDP per worker

Dependent variable: inflows	(1)	(2)
GDP of source	1.95 (0.22)***	1.94 (0.22)***
GDP of host	1.36 (0.29)***	0.91 (0.24)***
Per worker GDP (source country)	7.33 (1.85)***	7.11 (1.87)***
Per worker GDP host country)	−0.41 (0.71)	−3.17 (0.77)***
Per worker GDP (host) interacted with democracy		3.74 (1.27)***
Democracy	1.19 (0.74)	−32.80 (11.72)***
Privatization proceeds	0.35 (0.11)***	0.40 (0.11)***
Time dummy variables	Yes	Yes
Continent dummies	Yes	No
N (uncensored, censored)	2,665 (2,130, 535)	2,665 (2,130, 535)
Log-likelihood	−8,076.05	−8,077.76
Likelihood-ratio test: χ^2 (probability)	157.67 (0.00)	169.84 (0.00)

The coefficients of some variables in both columns were not stable according to the tests on quadrature. Hence these results should be interpreted carefully

Standard errors in parentheses. *, **, *** denote significance at the 1%, 5%, and 10% level respectively

Table 7 The interaction between fundamentals and the degree of democratization

Dependent variable: inflows	(1)	(2)
GDP of source	2.21 (0.20)***	2.21 (0.20)***
GDP of host	1.39 (0.28)***	1.37 (0.28)***
Per capita GDP of source	2.32 (0.82)***	2.32 (0.81)***
Per capita GDP of host	0.20 (0.41)	−1.29 (0.64)**
Per capita GDP of host interacted with the Polity2 index		0.21 (0.07)***
Degree of democratization (Polity2 index)	0.09 (0.05)*	−1.40 (0.50)***
Privatization proceeds	0.33 (0.11)***	0.35 (0.11)***
Time dummy variables	Yes	Yes
Continent dummies	Yes	Yes
N (uncensored, censored)	2,665 (2,130, 535)	2,665 (2,130, 535)
Log-likelihood	−8,079.27	−8,074.84
Likelihood-ratio test: χ^2 (probability)	158.01 (0.00)	151.42 (0.00)

Constant is suppressed in column (2) in order to see the pure effect of the POLITY2 (as intercept)

Standard errors in parentheses. *, **, *** denote significance at the 1%, 5%, and 10% level respectively

4 Discussion and conclusive remarks

The econometric analysis conducted for this paper supports the hypothesis that democracy has a positive impact on FDI from advanced to emerging economies, provided privatization proceeds in the host countries are accounted for. These results are obtained controlling for a number of economic fundamentals affecting

FDI, and checking for the robustness of our results to alternative measures of the political regime and for reverse causality.

We also find that parliamentary democracies are more likely to attract FDI than presidential ones: this can be interpreted as evidence that parliamentary democracy has a stronger positive effect than a presidential regime on trade liberalization, or on property right protection. Persson and Tabellini (2006a) find that presidential democracy could be more conducive to economic growth, but this is not necessarily at odds with our finding for two reasons: first, the effect they suggest is also due to sound fiscal policies, which might not affect FDI; second, their sample of democratic regimes includes OECD countries as well (while we only control for the political regime in host emerging countries).

The issue of which mechanism channels the impact of the political regime onto FDI attractiveness is clearly a crucial one, as it has possible spillovers for the economic policy debate. Our assumption is that there exist at least two alternative channels. First, different economic policies associated with different regimes (e.g., more or less trade liberalization) might affect the allocation and efficient use of production factors, as well as technology adoption in emerging countries, and therefore they might affect TFP and the expected return on investment. Second, different regimes may matter for property right enforcement and the risk of expropriation. To discriminate between these two channels, we introduce a political risk index referred to the host economy to control for the effect of political risk (expropriation, non-repayment of capital and/or income) on FDI inflows. We find that democracy is statistically significant and positive, and this can be interpreted as evidence that democracies may attract more FDI also through a higher rate of TFP and higher returns on investment, once political risk is controlled for.

Finally, we address the relations among political regime, per capita income and FDI. The relationship between per capita income differentials and FDI is much debated, and two alternative arguments are suggested in the literature. Larger differentials could foster north–south FDI, as multinationals could fragment production and invest in low income countries in order to save on labor costs (the so-called "vertical" FDI). Alternatively, the more similar countries are in terms of average income, the more similar preferences and demand patterns are, hence the larger FDI flows could be among those countries (the so-called "horizontal" FDI). Here, we check whether the relationship between per capita income and FDI is affected by the type of political regime in the host country. When the democracy dummy is interacted with per capita GDP of the host country, it displays a statistically significant and positive coefficient, suggesting a "horizontal" FDI pattern in the subset of democratic emerging countries. Conversely, autocratic regimes seem to attract relatively more "vertical" FDI. However, there are other key determinants of "vertical" versus "horizontal" FDI—such as market structures and transport costs—for which our empirical analysis does not provide an insight.

Although we believe this paper contributes to the empirical knowledge on political regimes and FDI, more complex analytical models of the two-way relationship between the political regime and FDI could be envisaged in the future to improve the comprehension of the political economy of FDI: promising avenues have been recently explored by Robinson (2006), or by Persson and Tabellini

(2006a), for the study of the relations between political institutions, development and economic growth. On the one hand, these models should contribute to a better theoretical understanding of the dynamics of these relationship; on the other hand, more advanced empirical models (and more extensive data) could provide new tools for checking the soundness of econometric results (for instance, with respect to endogeneity or actual TFP dynamics).

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Appendix A

Our data set includes bilateral FDI data for 14 OECD source countries and for 24 emerging host countries over the period 1992–2004 (336 cross-sections by 13 years).

List of countries in sample

Source countries: Austria, Denmark, Finland, France, Germany, Italy, Japan, the Netherlands, Portugal, Spain, Sweden, Switzerland, the United Kingdom and the United States.

Host countries (year of permanent democratization according to the POLITY IV data set of the University of Maryland. see: http://www.cidcm.umd.edu/polity/data/): Argentina (1983), Bulgaria (1990), Brazil (1985), Chile (1989), China (–), Colombia (1957), the Czech Republic (established in 1993), Egypt (–), Hungary (1989), Indonesia (1999), India (1950), South Korea (1987), Mexico (1994), Malaysia (1957), Morocco (–), the Philippines (1986), Poland (1989), Russia (1992), Romania (1990), South Africa (1910), Slovakia (established in 1993), Slovenia (1991), Thailand (1992) and Turkey (1983).

Appendix B

Data definition and sources

Gross FDI inflows: Foreign direct investment inflows from source country to host country in constant 2000 US dollars (OECD International Investment Statistics Yearbook, 2006).

GDP: Gross domestic product in constant 2000 US dollars (World Economic Outlook Database, IMF).

Per capita GDP: Gross domestic product per capita in constant 2000 US dollars (World Economic Outlook, IMF).

GDP per worker: Gross domestic product per worker in constant 2000 US dollars (Penn World Tables http://pwt.econ.upenn.edu).

Privatization proceeds: Privatization proceeds in constant 2000 US dollars (World Bank).

Degree of democratization: Dummy variable denominated Polity2 in the POLITY IV data set by the University of Maryland. Polity2 is a composite index (ranging from −10 to 10) that measures the "intensity" or "degree" of democratization in a country, based on the following underlying variables: competitiveness of executive recruitment, openness of executive recruitment, constraint on the chief executive, regulation of participation and competitiveness of political participation (http://www.cidcm.umd.edu/polity/data).

Democracy dummy: Binary dummy variable taking value one when the political regime is a democracy, zero otherwise. The occurrence of "democracy" is associated with positive values of the Polity2 variable defined above (http://www.cidcm.umd.edu/polity/data).

Political rights: The Freedom House Political Rights index, ranging from 1 (highest degree of freedom) to 7 (lower amount of freedom) (Freedom House 2007).

EU negotiation dummy: Dummy taking value one from the year an emerging country starts EU membership negotiations (and zero for the years before).

Political risk: The risk of non-payment or non-servicing of payment for goods or services, loans, trade-related finance and dividends, and the non-repatriation of capital. Risk analysts give each country a score between 0 and 25: the higher the score, the lower the risk (Eschenbach et al. 2004; http://www.i4ide.org/francois/data.htm).

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